

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method for extracting resources from a subterranean coal bed, comprising:

forming an articulated well bore extending to the subterranean coal bed and coupled to the surface, the articulated well bore having a first diameter and having an open end at the surface and a closed end in the coal bed;

inserting a liner into the well bore, the liner having a wall including a plurality of apertures and a second diameter that is smaller than the first diameter of the articulated well bore;

positioning a tube having an entry end and an exit end into the liner, wherein an annulus is defined between the tube and the liner that is operable to accommodate a fluid flow;

generating a flow of fluid through the annulus from the closed end to the open end of the well bore by urging the fluid into the entry end of the tube and out of the exit end of the tube;

receiving, at the open end of the well bore, a mixture comprising the fluid flowing from the closed end of the well bore, a plurality of coal fines, and coal seam gas that is mixed with the fluid; and

separating the coal seam gas from the mixture.

2. (Original) The method of Claim 1, wherein the fluid is a material selected from a group consisting of coal seam gas, water, air and foam.

3. (Original) The method of Claim 1, wherein the mixture is a first mixture and the fluid is coal seam gas, and further comprising:

generating a flow of water or foam through the annulus from the closed end to the open end of the well bore by urging water into the entry end of the tube and out of the exit end; and

receiving, at the open end of the well bore, a second mixture including water or foam from the closed end of the well bore and any coal fines from the well bore that is mixed with the received second mixture.

4. (Original) The method of Claim 1, wherein the second diameter of the liner is less than ninety percent of the first diameter of the well bore.

5. (Original) The method of Claim 1, wherein each of the apertures in the wall of the liner comprises a slot having a width of between 1/32 and 1/2 inches.

6. (Original) The method of Claim 1, wherein each of the apertures in the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

7. (Original) The method of Claim 1, wherein the closed end is positioned farther below the ground surface than any other part of the well bore.

8. (Original) The method of Claim 1, and further comprising collapsing the well bore around the liner after inserting the liner.

9. (Original) The method of Claim 1, wherein the articulated well bore comprises an approximately horizontal drainage portion extending into the closed end of the well bore.

10. (Original) A method for extracting resources from a subterranean coal bed, comprising:

forming a drainage well bore in the coal bed, the well bore having a first end coupled to a ground surface and a second end in the coal bed;

inserting a tube into the second end of the drainage well bore;

generating a flow of fluid from the second end to the first end by injecting fluid into the second end through the tube; and

after generating the flow, collecting, at the first end, a mixture comprising the fluid, a plurality of coal fines, and any resource from the well bore that is mixed with the fluid.

11. (Original) The method of Claim 10, and further comprising:

positioning a liner into the well bore without providing any support for preventing a collapse of the well bore, the liner having a wall defining a plurality of apertures, wherein a space sufficient to allow the well bore to collapse around the liner is defined between the well bore and the liner; and

wherein inserting a tube comprises inserting a tube through the liner.

12. (Original) The method of Claim 11, wherein each of the apertures defined by the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

13. (Original) The method of Claim 11, wherein the well bore has a first diameter and the liner has a second diameter that is at least ten percent smaller than the first diameter.

14. (Original) The method of Claim 11, wherein the well bore has a first diameter equal to or greater than approximately six inches and the liner has a second diameter equal to or less than approximately five inches.

15. (Original) The method of Claim 11, and further comprising collapsing the well bore around the liner after positioning the liner in the well bore.

16. (Original) The method of Claim 10, and further comprising: separating the resources from the mixture; and re-injecting at least a portion of the resources through the tube and into the second end of the drainage well bore.

17. (Original) The method of Claim 10, wherein the fluid is coal seam gas and the resource is coal seam gas.

18. (Original) The method of Claim 17, wherein the mixture is a first mixture, and further comprising:

generating a flow of liquid from the second end to the first end of the well bore by injecting the liquid into the second end through the tube; and

collecting a second mixture comprising the liquid from the first end of the well bore and any coal fines from the well bore that is mixed with the second mixture.

19. (Original) The method of Claim 10, wherein the well bore has a diameter equal to or greater than approximately six inches.

20. (Original) The method of Claim 10, wherein the well bore has a diameter of between approximately five to eight inches.

21. (Original) The method of Claim 10, wherein the second end of the well bore is positioned farther below the ground surface than the first end.

22. (Original) The method of Claim 10, wherein the well bore comprises a substantially horizontal drainage portion.

23. (Original) A method for extracting resource from a subterranean well bore, comprising:

forming a drainage well bore in the subterranean coal bed, the drainage well bore having a first cross-sectional diameter, a first end, and a second end;

positioning a liner in the well bore, the liner having a wall including a plurality of apertures and a second cross-sectional diameter that is at least ten percent smaller than the first cross-sectional diameter; and

at the first end, collecting a mixture flowing from the second end, the mixture comprising fluid, a plurality of coal fines, and any resource from the well bore.

24. (Original) The method of Claim 23, wherein each aperture of the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

25. (Original) The method of Claim 23, wherein the first cross sectional diameter is equal to or greater than approximately six inches and the second cross sectional diameter is equal to or less than approximately five inches.

26. (Original) The method of Claim 23, and further comprising collapsing the well bore around the liner after positioning the liner in the well bore.

27. (Original) The method of Claim 23, and further comprising:
separating the resource from the mixture; and
injecting at least a portion of the resource into the second end of the well bore through a tube.

28. (Original) The method of Claim 23, and further comprising:
after positioning the liner, generating a flow of fluid from the second end of the well bore to the first end of the well bore through the liner.

29. (Original) The method of Claim 28, wherein the fluid is water.
30. (Original) The method of Claim 23, wherein the first cross sectional diameter is equal to or greater than approximately six inches and the second cross section is equal to or less than five inches.
31. (Original) The method of Claim 23, wherein the first cross sectional diameter is between approximately five to eight inches.
32. (Original) The method of Claim 23, wherein the second end of the well bore is positioned farther below the ground surface than the first end.
33. (Original) The method of claim 32, wherein the well bore is angled between zero to forty five degrees from a horizontal plane.
34. (Original) The method of Claim 23, wherein positioning a liner comprises positioning a liner without providing any support for preventing a collapse of the well bore.

35. (Original) A method for extracting resource from a subterranean coal bed, comprising:

forming a drainage well bore in the coal bed, the well bore having a first end coupled to a ground surface and a second end in the coal bed;

collecting a mixture of coal seam gas, water, and any coal fines in the well bore;

extracting the coal seam gas from the mixture; and

injecting at least a portion of the extracted coal seam gas into the second end of the drainage well bore.

36. (Original) A system for extracting resources from a drainage well bore having a first end and a second end, the second end in a subterranean coal bed, the system comprising:

a tube positioned in the second end of the drainage well bore;

a fluid injector coupled to the tube and operable to generate a flow of fluid from the second end to the first end by injecting fluid into the second end through the tube; and

a separator coupled to the fluid injector and the tube, the separator operable to collect, at the first end of the well bore, a mixture comprising the fluid, a plurality of coal fines, and any resource from the well bore that is mixed with the fluid.

37. (Original) The system of Claim 36, and further comprising:

a liner positioned in the well bore, the liner having a diameter and a wall including a plurality of apertures, wherein the diameter of the liner is sufficiently small to define a space between the liner and the well bore that allows the well bore to collapse around the liner, and the liner is not associated with any support for preventing a collapse of the well bore; and

wherein the tube is positioned in the liner.

38. (Original) The system of Claim 37, wherein each of the apertures defined by the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

39. (Original) The system of Claim 37, wherein the well bore has a first diameter and the diameter of the liner is a second diameter, and wherein the second diameter is at least ten percent smaller than the first diameter.

40. (Original) The system of Claim 37, wherein the well bore has a first diameter equal to or greater than approximately six inches and the diameter of the liner is equal to or less than approximately five inches.

41. (Original) The system of Claim 36, wherein the separator is further operable to:

separate the resources from the mixture; and
re-inject at least a portion of the resources through the tube and into the second end of the drainage well bore.

42. (Original) The system of Claim 36, wherein the fluid is coal seam gas and the resource is coal seam gas.

43. (Original) A system for extracting resource from a drainage well bore in the subterranean coal bed, the drainage well bore having a first cross-sectional diameter, a first end, and a second end, the system comprising:

a liner positioned in the well bore, the liner having a wall including a plurality of apertures and a second cross-sectional diameter that is at least ten percent smaller than the first cross-sectional diameter;

a tube having an entry end and an exit end positioned in the liner, the exit end operable to be positioned approximately at the second end;

a fluid injector coupled to the entry end of the tube, the fluid injector operable to inject injection fluid into the second end of the well bore through the tube; and

a separator coupled to the fluid injector, the separator operable to collect, at the first end of the well bore, a mixture comprising injection fluid, a plurality of coal fines, and any resource from the well bore, the separator further operable to separate the resource from the mixture and send at least a portion of the resource to the fluid injector to be used as injection fluid.

44. (Original) The system of Claim 43, wherein each aperture of the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

45. (Original) The system of Claim 43, wherein the first cross sectional diameter is equal to or greater than approximately six inches and the second cross sectional diameter is equal to or less than approximately five inches.

46. (Original) The system of Claim 43, wherein injection fluid comprises water.

47. (Original) The system of Claim 43, wherein the second cross-sectional diameter is equal to or less than five inches.

48. (Original) The system of Claim 43, wherein the second cross-sectional diameter is at least twenty percent smaller than the first cross-sectional diameter.

49. (Original) The system of Claim 43, wherein the liner is not associated with any support configured to prevent a collapse of the well bore around the liner.

50. (Original) A method for stimulating production of resources from a coal seam, comprising:

forming a drainage well bore in the coal bed, the well bore having a first end coupled to a ground surface and a second end in the coal seam;

inserting a liner into the well bore, the liner having a wall including a plurality of apertures and a second diameter that is smaller than the first diameter of the drainage well bore such that a gap is formed between the wall of the liner and the well bore;

collapsing the drainage well bore around the liner to relieve stress in the coal seam proximate to the liner.

51. (Original) The method of Claim 50, wherein the second diameter of the liner is less than ninety percent of the first diameter of the drainage well bore.

52. (Original) The method of Claim 50, wherein each of the apertures in the wall of the liner comprises a slot having a width of between 1/32 and 1/2 inches.

53. (Original) The method of Claim 50, wherein each of the apertures in the wall of the liner comprises a hole having a diameter of between 1/16 and 1.5 inches.

54. (Original) The method of Claim 50, further comprising producing coal seam gas via the liner to the surface along with pieces of coal from the coal seam, the coal seam gas and the pieces of coal being produced from the coal seam to the liner via the apertures in the liner.

55. (New) A method for stimulating production of gas from a coal seam, comprising:

forming a drainage well bore including a substantially horizontal section in a coal seam;

inserting a liner into the drainage well bore; and

purposefully collapsing the drainage well bore around the liner.

56. (New) The method of Claim 55, further comprising collapsing the drainage well bore by lowering bottom hole pressure in the drainage well bore.

57. (New) The method of Claim 55, further comprising leaving drilling fluid in the drainage well bore while inserting the liner into the drainage well bore.

58. (New) The method of Claim 55, further comprising initiating collapse by lowering the bottom hole pressure in the drainage well bore below a threshold at which the coal around the drainage well bore collapses.

59. (New) The method of Claim 57, further comprising pumping or gas lifting the drilling fluid to the surface to instigate collapse of the drainage well bore.

60. (New) The method of Claim 55, further comprising removing drilling fluid from the drainage well bore to initiate collapse of the drainage well bore around the liner.

61. (New) The method of Claim 55, further comprising initiating collapse using shock waves in the coal bed.

62. (New) The method of Claim 55, further comprising initiating collapse using an explosion.

63. (New) The method of Claim 55, wherein the coal bed comprises a low permeability coal.

64. (New) The method of Claim 55, wherein collapse is controlled based on down-hole pressure.

65. (New) The method of Claim 55, whereby permeability of the coal bed is increased proximate to the liner.

66. (New) The method of Claim 55, further comprising forming the drainage well bore by drilling the substantially horizontal section in an over balanced condition.

67. (New) The method of Claim 66, wherein a cake is formed on a wall of the drainage well bore during over balanced drilling.

68. (New) The method of Claim 55, further comprising collapsing the drainage well bore before production of gas from the well bore begins.

69. (New) The method of Claim 55, further comprising collapsing the drainage well bore after production of gas from the well bore begins.

70. (New) The method of Claim 55, wherein a diameter of the liner is less than ninety percent of the diameter of the drainage well bore.

71. (New) The method of Claim 55, further comprising selecting a diameter of the drainage well bore for collapse based on characteristics of the coal bed.

72. (New) The method of Claim 55, wherein the liner comprises a wall including a plurality of apertures.

73. (New) The method of Claim 72, wherein the apertures have a diameter between one-sixteenth and one and one-half inches.

74. (New) The method of Claim 72, wherein the apertures comprise slots having a width between one thirty-second and one-half of an inch.

75. (New) The method of Claim 55, wherein coal collapses by expanding against the liner.

76. (New) The method of Claim 55, wherein the coal disintegrates during collapse.

77. (New) A method for producing gas from a coal seam, comprising:
forming a drainage well bore comprising a substantially horizontal section
in a coal seam;
inserting a liner into the drainage well bore;
collapsing the drainage well bore around the liner; and
wherein diameter of at least part of a drainage well bore is sized for
collapse based on characteristics of the coal seam.

78. (New) The method of Claim 77, wherein a diameter of the liner is sized
based on desired collapse of the coal bed around the liner.

79. (New) the method of Claim 77, wherein the diameter of at least part of the
drainage well bore is sized based on characteristics of the coal seam and a desired
collapse condition.

80. (New) A method, comprising:
determining one or more characteristics of a coal bed;
determining a size of at least part of a well bore to drill in the coal bed
such that the well bore may be collapsed by pumping fluids from the well bore to reduce
bottom hole pressure before or during production.